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ABSTRACT

Two concerns that underlie preoccupation with health care costs are that society may not be getting a "reasonable return" from increased expenditures and that the quantity of services per expenditure could be provided more cheaply. Concern arises because the "market" for health care deviates significantly from other "free enterprise" markets, it being the provider rather than the consumer who makes or helps make key decisions of what, when, and where to purchase services. Recent growth in expenditures, both per capita and as percentage of GNP, has been phenomenal, the largest share going to hospital care. Increased government financing and insurance payments have resulted in a decline of cut-of-pocket expenditures (from 68% in 1950 to 30% in 1977), yet medical costs comprise the single most common cause of personal bankruptcies. Since Total Expenditures = Price Per Unit x Number of Units Purchased, policies aimed at controlling one will not necessarily control the other, given such factors as increased demand due to growth in health insurance, including Medicare and Medicaid, and production costs resulting from the introduction of cost-enhancing technology. Lack of systematic policy coordination also hinders control. It is recommended, then, that policies to limit hospital expansion and to regulate rates be implemented in concert, along with review mechanisms to reduce inappropriate service utilization in combination with policies that lead to a relatively scarce supply of hospital beds. (CP)

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A DESCRIPTION AND ANALYSIS OF RISING HEALTH CARE EXPENDITURES

by

Sam M. Cordes

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INTRODUCTION

*Medical care expenses are the single largest cause of personal bankruptcy in the United States [44, p. 16].

*A recent national survey found that physicians viewed "the high cost of medical treatment" as the biggest problem in health care delivery [87, p. 36].

*Two of the four basic purposes of the recently established Health Systems Agencies focus on curbing the nation's expenditures for health care. These purposes are:

1. To restrain increases in the cost of providing health services.
2. To prevent unnecessary duplication of health resources [93, pp. 11-12].

The above items indicate that there is little disagreement that increased expenditures for health care are a major public concern and may be the nation's singlemost important health care issue. Considerably more disagreement exists on the questions of why expenditures are increasing, and what should be done to curb their increase.

This report focuses on the issue of increased expenditures for health care and is divided into the following six chapters:

*Why the Concern with Rising Health Care Expenditures?

*A Description of the Nation's Health Care Expenditures.

*A Simple Formula for Analyzing Health Care Expenditures.

*Reasons Behind Rising Health Care Expenditures.

*Proposed Solutions for Curbing Health Care Expenditures.

*Summary and Conclusions.

WHY THE CONCERN WITH RISING HEALTH CARE EXPENDITURES?

Although health care expenditures--both in total dollars and as a percentage of Gross National Product (GNP)--have risen dramatically in the past twenty-five years, there is nothing inherently wrong with such a situation. Indeed, change in what a society chooses to produce is a natural consequence of economic growth and development. Compared to the past, more dollars and more of our GNP are also being spent on a number of other goods and services including transportation, recreation, electricity, and household appliances. Yet rising health care expenditures seem to be a focus of particular concern. Why all the fuss?

There are at least two related reasons why health care is singled out for special concern. The first reason is the concern that society may not be getting a "reasonable return" from these increased expenditures. For example, research indicates that the health of our population--at least as measured by various death rates and longevity measures--appears to be quite unaffected by recent increases in health care expenditures and personnel. In fact, there is some evidence that some of the increased expenditures represent unnecessary use of services--especially surgical services--which may create rather than solve health problems [103; 20; 50; 63].

The second reason is that the quantity of health care associated with a certain expenditure level (or change in expenditure level) could possibly be made available less expensively. Fundamentally, this is because the "market" for health care deviates significantly from the kind of markets

which characterize the American "competitive free enterprise system." Fuchs describes this situation as follows:

> Most industries in the United States consist of profit-seeking firms actively engaged in competition with one another. The fundamental rationale of the American economic system is that the hope of profit (and the fear of loss) under conditions of open competition are the best guarantees of efficiency, an appropriate price and rate of output, and a fair return to the various factors of production.
>
> The medical care industry is organized along radically different lines. Nonprofit operations are the rule in the hospital field; there are severe restrictions on entry and competition in medical practice, and advertising and patent control dominate the market for drugs [35, p. 18].

Thus, there is no a priori basis for believing that the prices and quantities of medical care approach those that would be socially optimal. The ways in which the market for health care deviates from the markets which typify the American economic system do not end with Fuchs's list. Perhaps the most significant deviation is the relatively insignificant role of the consumer. One of the most fundamental premises of our competitive economic system is that it is the consumer who determines which goods and services to purchase and in what quantities, when to purchase, and where to purchase. In such a scheme the producer is at the mercy of the consumer, and those producers who do not respond to consumers' demands are forced from the market by their more responsive and efficient competitors. In the case of health care, except for the initial decision to seek care, it is the producer (i.e., provider) who either makes or helps the consumer make the key decisions of what, when, and where to purchase. In short, the various deviations associated with the health care market create the potential for at least two undesirable situations:

1. The per unit cost of producing health services (e.g., what it costs the physician to "produce" an office visit) could be reduced.
2. Even if the per unit cost of producing health services cannot be reduced, the prices paid by the public may be substantially greater than the cost of producing those services.

The first situation leads to inefficiency and the second one to excess profits, and both problems will contribute to inflated health care expenditures.

A DESCRIPTION OF THE NATION'S HEALTH CARE EXPENDITURES

In this chapter, information on three key issues will be presented:

1. How much is spent on health care?
2. What health care services are purchased?
3. How are health care services financed?

In addressing these three issues, emphasis will frequently be placed on changes in expenditures and financing rather than examining only the current situation.

How Much Is Spent on Health Care?

Between 1950 and 1977, the nation's health care expenditures have multiplied about fourteen times--from $12 billion to $163 billion (Figure 1). Although part of this increase is due to the fact that the nation's population has grown, the increase in per capita expenditures is also phenomenal--from $78 per person in 1950 to $737 in 1977* [41, p. 5]. Of course it can be argued that these increases are not more of a burden if the nation's (or individual's) ability to pay for health services has increased at the same rate. GNP, the most common measure of a nation's "ability to pay," has, in fact, increased significantly since 1950 but not as rapidly as health care expenditures. Figure 1 indicates that the percentage of GNP allocated to health care expenditures increased from 4.5 percent to 8.8 percent between 1950 and 1977.

It is important to note that per capita expenditures vary significantly depending upon one's age, race, income, and place of residence [65]. For example, in 1969 (the latest year for which state estimates are available) per capita expenditures ranged from a low of $138 in Mississippi to a high

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*As will be shown in Chapter 3, some of this increase is to be expected due to the general inflationary trend in the economy. However, even after adjusting for inflation, per capita expenditures for health care have increased dramatically.

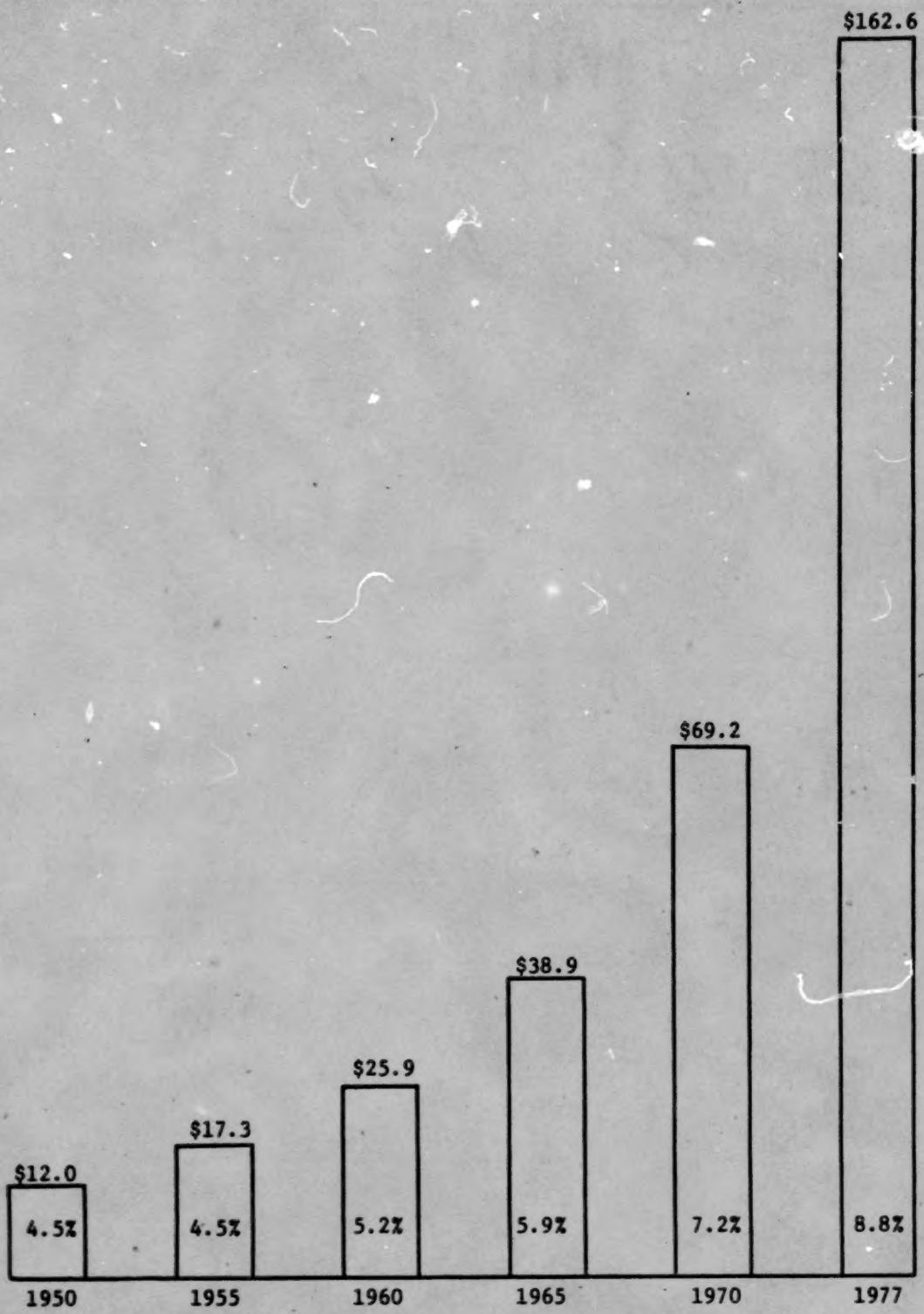

Figure 1. National Health Care Expenditures in Billions of Dollars and as a Percentage of Gross National Product, 1950-1977.

Source: [107, p. 5].

of $346 in Massachusetts [99, p. 16]. Variations by age, race, and income are shown in Figure 2. As would be expected, per capita expenditures for the elderly were higher than for any other age group. Whites and those with higher incomes had higher per capita expenditures than did nonwhites and those with lower incomes, respectively. Since nonwhites and those with lower incomes generally have poorer health status (as measured by mortality rates and incidence of illness), the relatively lower per capita expenditures for these two groups suggest they are likely to have greater unmet needs for health care than do whites and those with higher incomes [97].

What Health Care Services Are Purchased?

Expenditures on health care are allocated to innumerable specific services. The information in Table 1 divides total health care expenditures into eight major categories or items. Although the total amount of dollars spent on each of these items has increased tremendously since 1950, the share of total spending going to some items has decreased while the share going to other items has increased.

In recent times, the single largest share of the health care dollar has gone to hospital care. Moreover, the hospital share of the health care dollar has increased significantly since 1950, and in 1977 accounted for 40 cents of each dollar spent. The share of the health care dollar going to nursing home care has also increased significantly--from 1.5 cents in 1950 to 7.8 cents in 1977. The only other component which increased its share of the health care dollar between 1950 and 1977 was medical research. However, this item represents only a tiny fraction of the health care dollar

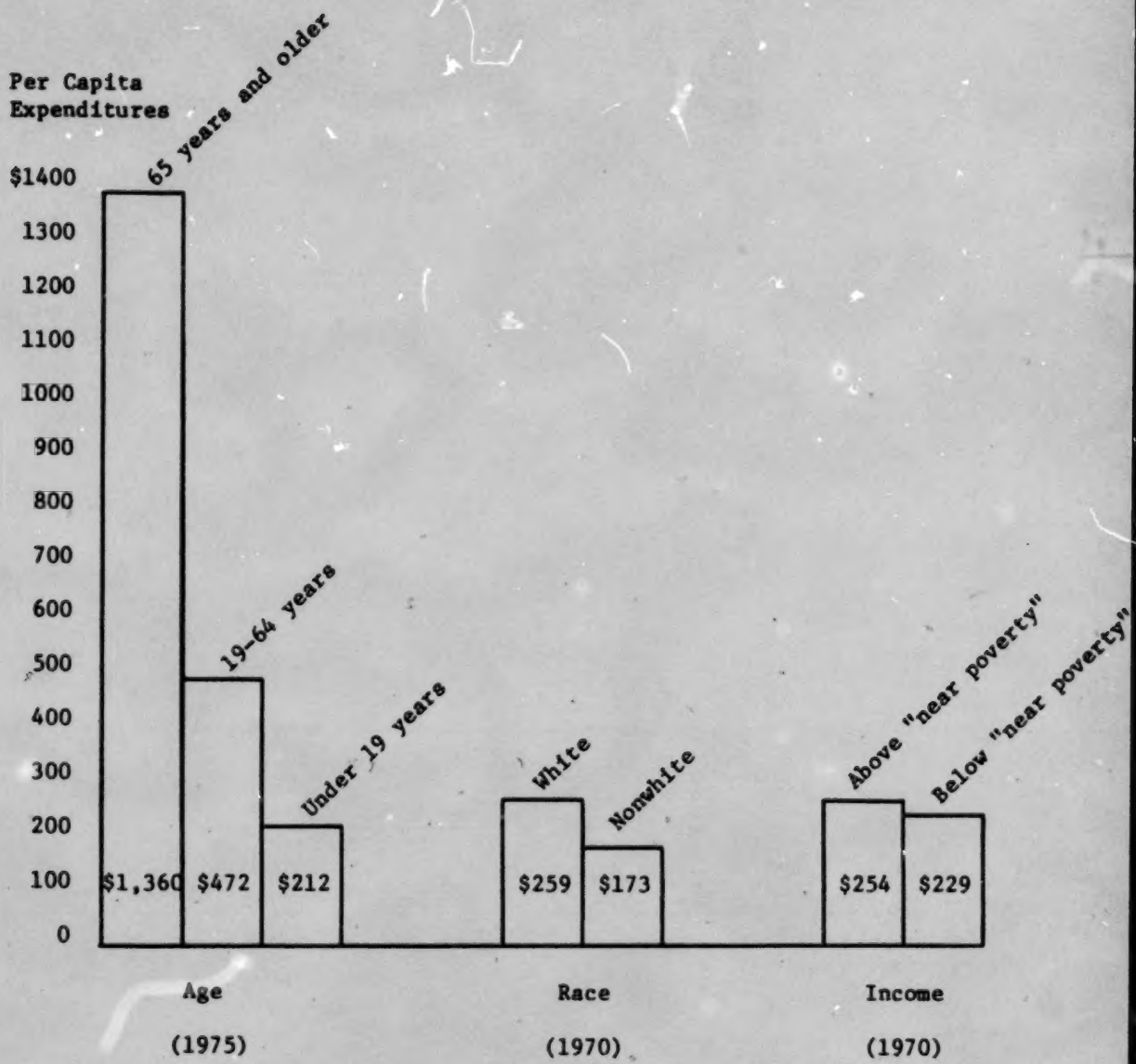

Figure 2. Per Capita Health Expenditures by Age, Race, and Income

Source: [64, p. 20; 4, pp. 17-18].

Table 1. Share of the Health Care Dollar Allocated to Specific Services, 1950-1977

Service	Year				
	1950	1960	1965	1970	1977
Hospital Care[a]	30.7%	32.9%	33.8%	37.4%	40.4%
Nursing Home Care	1.5%	1.9%	3.3%	5.5%	7.8%
Physicians' Services[a]	22.4%	21.6%	21.6%	19.4%	19.8%
Dentists' Services	7.8%	7.5%	7.0%	6.5%	6.2%
Drugs and Sundry Items[b]	13.7%	13.9%	11.9%	10.3%	7.7%
Medical Research	.9%	2.3%	3.6%	2.7%	2.3%
Medical Facilities Construction[c]	6.1%	4.3%	4.7%	4.8%	3.1%
Other[d]	16.9%	15.6%	14.1%	13.4%	12.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Source: [41, p. 15]

a. Salaried physicians on hospital staffs are included as hospital care rather than as physicians' services.

b. Excludes drugs provided to inpatients.

c. Includes both public and private expenditures.

d. Includes expenditures for eyeglasses; school health; government public health activities; and health insurance companies' operating expenses, additions to revenues, and profits.

(2.3 cents in 1977) and received a smaller share of this dollar in 1977 than in 1965. The four items which have found their share of the health care dollar shrinking since 1950 are physicians' services, dentists' services, drugs and sundry items, and medical facilities construction.

How Are Health Care Services Financed?

Ultimately, health care services are financed by the public, but the exact way in which the public's dollars flow into the health care system include both private and government (federal, state, and local) avenues. Private spending is typically subdivided into three categories: direct or out-of-pocket expenditures by consumers; private insurance payments made for or on behalf of consumers; and "other" (which includes philanthropic spending).

The facts in Table 2 show the change in the source of payment for personal health care expenditures* between 1950 and 1977. Between 1950 and 1965 there was no change in the percentage of total expenditures financed from private sources (approximately 80 percent) and the percentage financed by government (approximately 20 percent). However, within this fifteen-year period there was a significant change within private spending in that the share of total expenditures from out-of-pocket payments decreased from 68.3 percent to 52.5 percent. During this same time the share of expenditures from insurance benefits increased from 8.5 percent to 24.7 percent.

---

*Personal health care expenditures exclude spending for medical research; medical facilities construction; government public health activities; and health insurance companies' operating expenses, additions to revenues, and profits.

Table 2. Personal Health Care Expenditures* by Source of Funds, 1950-1977

Source of Funds	Year				
	1950	1960	1965	1970	1977
Total	100.0%	100.0%	100.0%	100.0%	100.0%
Private	79.8	78.3	79.2	65.8	59.9
Out-of-pocket payments	68.3	55.3	52.5	40.3	30.3
Insurance benefits or payments	8.5	20.7	24.7	24.0	27.6
Other	3.0	2.3	2.0	1.5	2.0
Government	20.2	21.7	20.8	34.2	40.1
Federal	9.4	9.2	8.5	22.3	27.9
State and Local	10.8	12.5	12.3	11.9	12.2

Source: [65, p. 17; 41, p. 7]

*Excludes expenditures for medical research; medical facilities construction; government public health activities; and health insurance companies' operating expenses, additions to revenues, and profits.

Since 1965, the share of total personal health expenditures from insurance benefits has stabilized. However, in 1965 the Medicare program for the elderly and the Medicaid program for the poor were enacted. Since that time the share of expenditures from out-of-pocket payments by consumers has continued its sharp decline and the share from the federal government has increased dramatically. The net effect was that by 1977 about 40 percent of all personal health care expenditures were financed by government, principally the federal government.

Although Medicare and Medicaid have been of benefit to those over age 65 and to the poor, respectively, these two groups continue to make significant out-of-pocket contributions for their health care. In 1970, both groups made an out-of-pocket contribution which represented approximately 35 percent of their total personal health care expenditure [4, p. 45].

Finally, the information in Figure 3 indicates the way in which different categories of personal health care services are financed. Out-of-pocket payments respresent a rather small share (6 percent) of the total payments made for hospital care. At the other extreme, out-of-pocket payments are the principle source of financing for dentists' services (80 percent) and drugs (83 percent). Private insurance benefits are a significant source of financing for both hospital care (37 percent) and physicians' services (37 percent). However, the chief source of financing for hospital care is the government (55 percent).

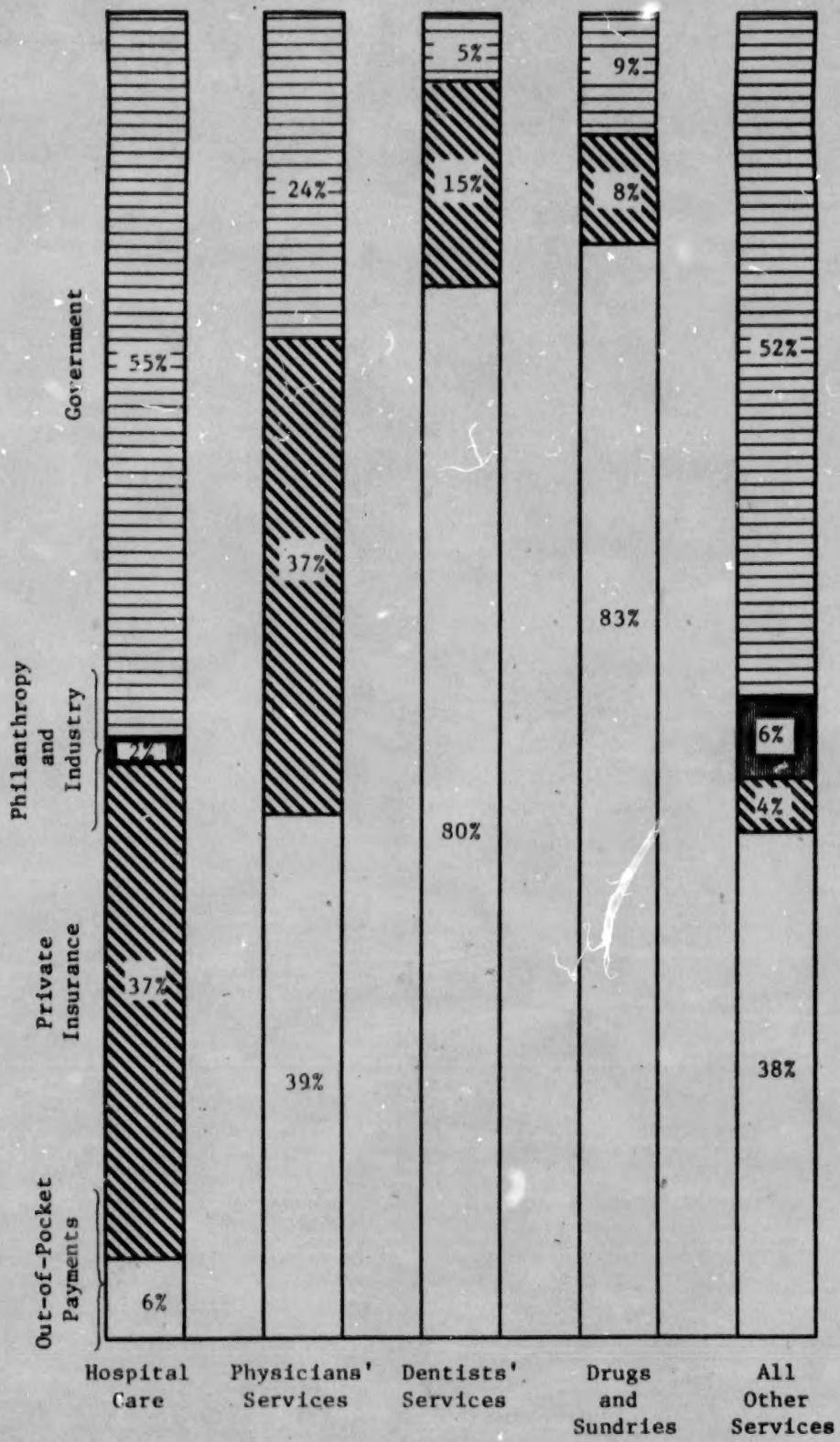

Figure 3. Sources of Funds for Various Health Care Expenditures, 1977.

Source: [41, p. 15].

A SIMPLE FORMULA FOR ANALYZING HEALTH CARE EXPENDITURES

A nation's or an individual's total expenditures for health care are determined by the following "formula":

Total Expenditures = Price Per Unit x Number of Units Purchased.

It is extremely important to realize that price and expenditures are two very different concepts. Price refers to the amount of money which must be paid to purchase each unit of health care. Expenditures refer to the total amount of money spent on health care over a certain time period such as a year, and is calculated by multiplying the price per unit times the number of units purchased. In comparing expenditures for two different time periods it is quite possible that expenditures and price have moved in opposite directions. For example, if the price of dentures decreases, the number of dentures purchased would be expected to increase. If the number purchased increased sufficiently then total expenditures for dentures would also increase.

Recognizing the fundamental difference between the concepts of price and expenditures becomes particularly important when developing legislation and other types of public policies. Rashi Fein, a well-known Harvard health economist, emphasizes this point in noting that:

> Solutions that would attempt to restrain price or expenditure increases are not necessarily the same. To suggest that controlling prices necessarily controls expenditures or vice versa is really a simplification that borders on mythology.

> Indeed, it is not at all difficult to imagine a set of policy measures that would limit increases in expenditures but stimulate more rapid increases in prices, and vice versa. Thus, for example, an effective program to reduce dollar inflows into the hospital sector by early discharge and by limiting care only to those who absolutely need it might turn out to be effective in reducing the amount of money expended in that sector and thus in the total health care bill for the nation. . . Yet, if only the most sick were in the hospital, per diem costs of hospital care would rise.
>
> The design of policy must take account of the differences between price and expenditures, and the designers must decide which of these two variables to address. We should not use the word "inflation" to mean both an increase in prices and an increase in expenditures. We must be more precise than that unless we purposefully want to confuse things [28, p. 388].

Because changes in total expenditures are determined by changes in price per unit and number of units purchased, it is important to examine how these two determinants of total expenditures have changed. Trends in these two determinants are reflected in the information contained in Tables 3 and 4. The data in Table 3 show that with one exception the annual rate of increase in medical care prices has far outpaced the overall inflationary trend in our economy* (as measured by the Consumer Price Index for all goods and services). The one exception is for 1971-1974, during which time medical care prices did not increase quite as rapidly as did prices for all consumer goods and services. This was a unique period in that controls were placed

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*It has been argued that this rapid inflationary trend in medical care prices overstates the true price increase because adjustments have not been made for improvements in the quality of medical care. If this argument were correct, a more valid measure could be obtained by calculating changes in the total cost of treating specific illnesses. Such a study was undertaken by Scitovsky. In this study changes in the cost of treating five common illnesses were calculated for the period 1951-1965. Contrary to expectations, the research results indicated that the cost of treatment had increased considerably more than the increase in medical care prices [81].

Table 3. Average Annual Price Changes for All Goods and Services and for Selected Medical Care Services, 1950-1975.

Service	Annual Percentage Change in Prices			
	1950-65	1965-71	1971-74	1974-75
All Goods and Services	2.1	4.7	6.2	10.2
Medical Care	4.5	7.2	4.5	13.9
Semi-Private Hospital Room	10.0	19.2	5.9	19.2
Physicians' Fees	4.0	7.8	4.1	14.0
Dentists' Fees	3.0	6.3	4.2	11.8
Drugs and Prescriptions	.9	.9	.7	8.9

Calculated from data in reference 101, p. 159

Table 4. Utilization of Selected Health Services, 1957-1976.

Type of Health Service and Measure of Utilization	Time Period		
	1957-1959	1968	1976
Physician services			
--average number of visits per person per year	5.0	4.2	4.9
Dental services			
--average number of visits per person per year	1.4	1.3	1.6
Hospital services			
--average number of discharges per 1,000 population	---	122	141
--average length of stay per hospital discharge (in days)	---	9.2	7.9

Source: [100, pp. 24 and 34; 96, p. 4; 95, p. 2]

on medical care prices, and since the lifting of the controls these prices have resumed their escalation. The component of medical care prices which has risen most dramatically is hospital care. For example, between 1974 and 1975 the price of a semi-private hospital room increased by over 19 percent. The rate for a semi-private room in 1975 was more than seven times greater than it was in 1950, and approximately twice as great as it was in 1968 [101, p. 159]. Although increases in physicians' and dentists' fees have also outpaced the price increase for all consumer goods and services, their rates of increase have lagged far behind hospital prices. Finally, prices for drugs and prescription have actually increased at a slower pace than prices for all consumer goods and services.

Trends in the use of services are presented in Table 4. Unlike the rapid increase in prices, the amount of services used per person has not changed dramatically in the past two decades. Physician visits per person per year have remained stable, and dental visits per person per year have increased only moderately. Although the number of persons hospitalized per 1,000 population has increased, the average number of days associated with an episode of hospitalization has decreased. The end result of these countervailing forces is that the number of hospital days per 1,000 population has not changed significantly.

The general conclusion that the use of medical services for the average person has not changed dramatically in recent times is not true for specific population groups. In particular, recent evidence shows that the use of medical services has increased rather dramatically for the poor, elderly, and nonwhites [2; 96; 100]. Although these groups--at least the poor and

nonwhites--are still less likely to have their needs met than are the nonpoor and whites, their increased use of services is still significant and likely reflects the impact of the Medicaid program which was enacted in 1965. Similarly, the increased use of medical services by the elderly likely reflects the impact of the Medicare program which also was enacted in 1965.

REASONS BEHIND RISING HEALTH CARE EXPENDITURES

In the previous chapter the following formula for analyzing health care expenditures was presented:

Total Expenditures = Price Per Unit x Number of Units Purchased.

This formula is useful for understanding the two basic components affecting expenditures, but it does not get at the root of the issue. In particular, what specifically influences the level and changes in health care prices and the number of units of health care services purchased? One of the key influences--the "market structure" for health services--was discussed in an earlier chapter. However, given a particular market structure, two additional factors are instrumental in influencing price and the number of units purchased. These two factors are the cost of production and the demand for health services. To some extent these two factors cannot be separated neatly from the effect of "market structure" and the reader must keep this fact in mind. In the following two sections the factors affecting cost of production and demand for health services will be discussed.

Cost of Production

Health care services are typically provided in hopes of treating, preventing, or minimizing the impact of some particular disease, illness, or injury. The cost of production associated with this process is dependent upon (1) technology, (2) prices paid by the provider for the labor and capital inputs used to produce health services, and (3) how efficiently these inputs are

used. As the cost of production of health services increases, the price of these services would be expected to increase as would total expenditures for these services.*

Medical Technology

A recent report on rising health care costs notes that:

> Medical innovations in recent years have been characterized by an emphasis upon complex diagnostic and therapeutic techniques usually requiring hospitalization and complicated, expensive equipment. Examples of this trend include chemotherapy, cancer radiation therapy, renal dialysis, open-heart surgery, organ transplants, intensive care units for heart attacks, burns and trauma, and electronic brain and whole-body scanners. This trend has been associated with considerable advances in medical technology as well as the spread of existing technology [22, p. 20].

In most industries technological innovations are usually accepted rather readily because they typically lead to a less expensive or more efficient production process. In recent years, the innovations in the health care industry, such as those examples listed above, have led to a more expensive, rather than less expensive, way of delivering health care. Gaus summarizes this situation as follows:

> During the 1940s and early 1950s, technological change in health care was synonymous with new drugs which could often be dispersed on an ambulatory basis, were highly effective against pneumonia, influenza, tuberculosis and other infectious diseases, and which had major impacts on morbidity and mortality related to these diseases.
>
> [But more recently the] effect of health care technology in this country, in combination with hospital-oriented, cost-based health insurance, has been to encourage the shift in the health care system away from office-based, primary care medical practice and toward the more expensive hospital-based, specialty-oriented practice [39, p. 13].

---

*As noted earlier, an increase in price does not necessarily lead to higher total expenditures. Whether or not it does depends upon the economic concept of "price elasticity of demand." The nature of the demand for most health services is generally thought to be quite inelastic, which means price and expenditures will go up and down together [85, pp. 28-35].

Two recent examples of the adoption of technology which have increased rather than decreased costs are intensive care units for heart attack victims and the computed tomography (CT) scanner which represents a major advance in diagnostic radiology. In the case of intensive care units for heart attacks, only 11 percent of private nonprofit hospitals had such units in 1960. By 1973 such units were in place in over 70 percent of these hospitals [21, pp. 87-88]. In the case of CT scanners, which cost upward of $500,000 per unit, only 12 hospitals had installed these systems by 1974. By 1976, 321 units were installed, another 330 were on order and/or approved for installation by health planning authorities, and another 200 applicants were pending. Analysts predict that as many as 2,500 CT scanners will be in use by 1980 [19].

The exact contribution of technological advances to rising health care costs cannot be estimated directly. However, to the extent the new technology requires additional labor and other inputs, its effect can be gauged by relating cost changes to changes in the amount of inputs used. In the case of hospitals, average cost per patient day increased by an annual average of 9.9 percent between 1955 and 1975. Feldstein estimates that 47 percent of this annual increase was due to increased use of inputs—15 percent due to increased labor inputs and 32 percent due to increased nonlabor inputs. In physical terms, labor inputs increased from 2.2 full-time employees per patient day in 1955 to 4.0 full-time employees in 1975 [106, pp. 24-25].

Whether or not the growth in expenditures attributable to recent changes in medical know-how and technology is desirable or undesirable depends largely on the effect these medical innovations and technology have had on health status. Unfortunately, the effect is frequently either unknown or of

questionable value. Excerpts from several articles illustrate the point:

> Griner compared adult patients suffering from pulmonary edema of nonsurgical causes who were admitted to the intensive care unit of a university hospital with those admitted to a general medical floor immediately before the opening of the special unit. In Griner's words, "The most noticeable change in the overall experience of adult patients hospitalized with acute pulmonary edema...since the opening of an intensive care unit has been a marked increase in the cost of rendering care to these patients." Other studies have cast doubt on whether coronary care units have any effect on mortality from myocardial infarction, yet these expensive units are proliferating in our hospitals. The U.S. health care system has fallen rather blindly in love with sophisticated medical technology [101, pp. 33-34].

And

> At the same time, because of the much greater use of tests and procedures and the electrical hazards posed by the equipment used, intensive care exposes all patients in the unit to a higher level of medical risk than does ward care. A study of the risks of hospitalization in general has suggested how important those risks can be: 20 percent of the patients in the study suffered complications, ranging from minor to fatal, from tests, drugs and therapeutic measures intended to help them. The study concluded that "the many reactions reported here, and the variety of drugs and procedures incriminated, emphasize the need to hold all measures suspect [78, p. 4]."

And

> Many situations can be described in which technology has proved to be of no benefit or even harmful. A recent, often cited example is "freezing" of the stomach for ulcer disease. First used in 1962, gastric freezing was finally abandoned in 1969. In 1963, at a panel symposium sponsored by the American Gastroenterological Association, it was recommended that adoption of the procedure be delayed to allow time for further testing, but the procedure was widely accepted by the profession. By 1964, doctors were using 1,000 gastric freezing machines to treat 10,000 - 15,000 patients per year in the U.S. By 1969, 2,500 machines were in use. [The] results of a large-scale, carefully controlled clinical trial, published in 1969, proved definitely that gastric freezing was no more effective than doing nothing. At this point, "no technology" was enough. The procedure was rather quickly discarded [52, pp. 14-15].

But what about those cases where expensive new technology and innovation do have a positive impact on health status? The relevant economic issue in these cases is the size of the positive impact relative to the cost of the technology. In other words, how cost-effective is the new technology? For example, suppose a new medical procedure costs $1 million per life saved. Is this procedure too costly to be adopted? The typical reaction to this question is, "Of course not, you just can't place a value on a human life!" Those few who may see fit to question this reaction are likely to run the risk of being called calloused and accused of not appreciating the value of human life. This accusation is not necessarily true because resources are limited, and $1 million spent in one medical procedure means there is $1 million less to spend in some other way which may, for example, save 1,000 lives. In reality then it is those who do not raise the cost-effectiveness question who, by default, are failing to appreciate the value of human life. In particular, they are not appreciating the importance of the 1,000 lives which in this example will not be saved by spending the $1 million on the new medical procedure which saves one life.

Since many expensive medical technologies and procedures may not be cost-effective, why then are they adopted and diffused so rapidly throughout the health care system? The answer to this question is likely found in the perverse incentive system found in the health care system, particularly incentives related to the services offered in hospitals. Perhaps the two most important disincentives related to the judicious adoption and diffusion

of technology are the nonprofit nature of most hospitals and third-party insurance carriers' policy of reimbursing hospitals on the basis of cost. These two disincentives will be discussed in more detail later. Rice and Wilson include these two reasons along with several others in analyzing the rapid adoption of technology.

> In a regime of full-cost reimbursement, there is little incentive on the part of the patient, hospital administrator, or the physician to create a situation favorable to the adoption of resource-saving technology. Instead, perverse incentives towards the adoption of resource-using technology are present.
>
> Supportive of the same phenomenon is a tendency of administrators and hospital staff to maximize their prestige by commandeering certain key inputs to their hospitals. It has also been noted that the modern hospital under extensive hospital-based insurance is essentially a physician's rent-free workshop, and that the physician staff will press administrators and trustees to add those inputs that enhance staff income and prestige. Technological acquisitiveness is reinforced by a strong technological imperative instilled in physicians in their medical training programs, and is tacitly encouraged by the present cost-based financing system.
>
> There may be, in fact, a feedback mechanism at work that is leading the health-care system down an explosive growth path. The new high-cost hospital-based technology necessitates specialization, and fosters a narrow professionalism among new physicians. For reasons relating to income, prestige, and the way that modern medicine is practiced, new physicians are drawn away from primary care office-based settings and toward the practice of specialized medicine within an urban institutionalized setting. This trend toward medical specialization, in turn, proliferates physicians' demands to induce hospitals to adopt still more technology.
>
> An additional effect of technology on individual hospitals is to attract more complex cases which require more resources. In terms of all hospitals, the increased technology has the tendency of making many cases that were untreatable previously become subjects of complex treatments. Scitovsky suggests that this is true, even with cases that are relatively straightforward. For example, it is relatively unheard-of to deliver a baby outside a hospital or to have a broken arm set in a physician's office [77, p. 33].

Prices Paid by Providers for Their Inputs

Doctors, pharmacists, hospitals, and other health care providers feel the effects of inflation in terms of the higher prices they must pay for the labor and capital inputs needed to produce their services. These higher prices for inputs obviously drive up the cost of production and these costs are, in turn, generally passed on to the consumer in the form of higher prices.

The exact effect of the higher prices providers must pay on cost of production is best documented in the case of hospital care. Research indicates that between 1951 and 1973 about one-half of the increase in cost per patient day was due to increased wages and prices paid by hospitals [99, p. 39]. The balance was due primarily to the technologically related increase in the quantity of inputs used in producing hospital care. In the case of physician services, the research is not as extensive but a pattern similar to that found for hospital care appears to hold [106].

In terms of the effect of increased prices paid by providers, three items—labor, malpractice premiums, and borrowed capital--are worthy of particular attention. Casual observers often attach much of the blame for rising health care prices--especially hospital care--to rising wage rates. Although the average earnings of hospital employees have risen faster than other workers, these increased earnings have not had as dramatic an effect as might be expected. Feldstein's analysis indicates that if the increase in the average earnings of hospital workers had simply kept pace with the earnings of other employees, the annual rate

of increase in average cost per patient day between 1955 and 1975 would have been reduced only moderately--from 9.9 percent to 8.8 percent [33, p. 13]. In recent years, increased prices of nonlabor inputs purchased by hospitals--especially food, energy, malpractice premiums, and borrowed capital--have likely increased at a much more rapid rate than the wages of hospital employees. However, the impact of price rises for nonlabor inputs will have a slightly smaller effect than wage increases on cost per patient day because a slightly greater proportion of the inputs used in producing hospital care are labor inputs rather than nonlabor inputs. In particular, labor costs accounted for about 53 percent of the average cost per patient day in 1975. However, this percentage has declined since 1955 when about 62 percent of the average cost per patient day was attributable to labor inputs [33, p. 16].

Malpractice insurance is one nonlabor input which has received extensive attention in recent years. Malpractice premiums increased at a phenomenal rate in 1974-1975 and at that time cost some high-risk specialties more than $35,000 annually [16, p. 240]. Hospitals also feel the impact. For example, in 1975 the average malpractice insurance cost increased from $348 to $1,447 per bed for New York hospitals. This translates into an increased cost per bed of about $4 per day [21, p. 5].

Interest paid on borrowed capital is another nonlabor input worthy of special mention. The problem is not so much that interest rates, per se, have increased significantly, but that providers are now tending to use more commercial sources of funds rather than government grants and philanthropy.

Commercial loans, unlike philanthropic and government grants, must be repaid with interest. The sources of capital for hospital construction in 1968 were: government (32 percent), philanthropy (20 percent), hospital reserves (14 percent), and loans (34 percent). By 1973, government and philanthropic sources had decreased to 21 percent and 10 percent, respectively, and loans as a source of financing had increased to 54 percent [101, p. 180].

Efficiency in the Use of Inputs

Given a certain level of technology and a set of prices for the inputs used to produce services, the amount of output forthcoming from a particular amount of inputs can still vary tremendously. This variation in output relative to input use reflects different levels of efficiency in the use of inputs. The cost of producing a unit of health care obviously decreases as efficiency increases (i.e., as more output is produced from a given amount of inputs). Although a large number of factors influence economic efficiency the ones most relevant to the discussion of health care costs relate to: legislation that restricts the way in which inputs can be combined or organized; "economies of size"; the nonprofit nature of much of the health care industry; and the reimbursement policies associated with most health insurance plans.

Legislation that Restricts How Inputs Can Be Combined: Any particular item, including health services, can typically be produced by combining inputs in an infinite number of ways. However, some of the ways in which inputs are

combined will be more efficient (less costly) than other ways. For example, the nation's coal supply could be produced by using little or no expensive machinery and much more hand labor. In the U.S. this would be a less efficient (more costly) way of combining inputs relative to a greater use of machinery and less use of labor. In India, however, where labor is relatively cheap and machinery relative expensive, the most efficient way of combining inputs will be greater use of labor and less use of machinery.

If restrictions exist on the way in which inputs may be combined, it is quite possible that the most efficient way of production is not being used. In the health care industry the most significant restriction on how inputs can be combined is in terms of health care personnel. Many authorities have argued that some of the relatively simple tasks and procedures typically performed by doctors could be done just as effectively by persons with less formal training. If so, cost of production would be reduced. However, this potential substitution of the skills of less expensive personnel for the much more expensive skills of the physician is often precluded or inhibited by state licensure and statutes. These statutes and licensure systems have likely contributed to the unusual distribution of earnings in the health profession. Personnel in most industries are characterized by a continuum of skills and earnings with the heaviest concentration in the middle range of the continuum. By contrast, the health care industry is characterized by a bimodal distribution with one large group of persons earning relatively low incomes and another sizeable group earning relatively high incomes, with

a fairly small number of persons earning middle-range incomes [38].

In the past decade, a number of "new health practitioners" (NHPs) have emerged and begun to fill the void of medical personnel in the middle range of skills and income. Included among these NHPs are physician's assistants and nurse practitioners, both of whom are "trained to carry out many of the tasks in the provision of primary care which heretofore have been the sole province of the physician or to perform important tasks which have been oftentimes forgotten [54, p. 57]." These tasks often include taking medical histories, performing physical examinations, making simple diagnoses, treating relatively minor medical problems, and encouraging proper health practices.

Evaluative studies of NHPs have been virtually unanimous in concluding that (1) the quality of care provided was at least as good as that provided by physicians, (2) patient acceptance of NHPs is consistently high, and (3) NHPs have the potential for increasing efficiency and productivity in the delivery of health care. Unfortunately, the full potential of NHPs has not been realized due to restrictive licensure provisions and other restrictive statutes in some states, malpractice considerations, and failure of many health insurance plans to reimburse for services provided by NHPs [101, pp. 373-381; 54; 85, pp. 53-55; 92].

Economies of Size: "Economies of size" refers to the situation in which output increases proportionately more than the increase in the use of inputs. This increased efficiency (or decrease in cost) can occur for a variety of reasons. One reason is that the greater use of inputs creates the potential

for a more efficient division of labor. Another reason is that larger size operations can use "lumpy" inputs more efficiently. For example, since it is not possible to have one-half of an open-heart surgery unit, the small hospital which acquires this service must purchase an entire unit. This unit will not be used as frequently as one purchased by the larger hospital. Because the total cost of the unit will be spread among fewer users in the smaller hospital, the cost per user will presumably be higher than in the larger hospital. It is important to note that economies of size may eventually give way to diseconomies of size as the operation becomes too large and unwieldly to be managed efficiently.

Considerable research has been done on the extent to which economies of size exist in the health industry. Most of this research has been done on hospitals but these efforts have been hampered by a number of problems. Perhaps the singlemost difficult problem is how to account for differences in scope of service and type of patient treated as hospital size changes. Despite this difficulty there appears to be fairly general agreement that substantial economies of scale are associated with larger hospital size--at least until hospitals reach a size of approximately 200 beds [36, pp. 82-86; 85, pp. 80-85]. Interestingly, over 90 percent of the nation's proprietary (for-profit) hospitals and over 60 percent of the nation's nonprofit hospitals have fewer than 200 beds (Table 5). The general conclusion that 200 bed hospitals can capture most of the efficiencies associated with economies of scale must be modified depending upon the scope of services hospitals offer. Fuchs summarizes this situation as follows:

Table 5. For-Profit and Non-Profit, Non-Federal, Short-Term Hospitals by Size, 1973

Number of Beds in Hospital	Percent of For-Profit Hospitals	Percent of Non-Profit Hospitals
6 - 24	10	4
25 - 49	31	14
50 - 99	32	22
100 - 199	21	25
200 - 299	5	15
300 - 399	1	9
400 - 499	0	5
500 and over	0	6
All Sizes	100	100

Source: [101, p. 302]

> if hospitals are not going to provide a large number of complex services, they needn't be very large to be efficient; but if they are to provide a large number of services, it is very inefficient for them to be small. A hospital of 200 beds can efficiently provide most of the basic services needed for routine short-term care--radiology, laboratory, nursing and the like. Should that hospital grow to 600 beds and still provide only the same basic services, some inefficiencies are likely to develop because of increasing difficulties of administrative control. What is likely to happen, however, is that more specialized services will emerge in the 600-bed unit, services which couldn't possibly have been provided at a reasonable cost when the hospital had only 200 beds [36, p. 83].

In response to the presumed economies of size in certain hospital services, the Department of Health, Education, and Welfare recently developed "utilization standards" for a number of services. For example, the standards include a minimum of 1,500 deliveries for hospitals providing for complicated obstetrical problems, 200 procedures for an open-heart surgery unit, and 2,500 procedures for a computed tomographic scanner [68]. These standards, if approved, are to be implemented through the regional nationwide network of Health Systems Agencies (see p. 49).

More research has been done on the potential for economies of size in hospitals than in the physician's office. Despite this lack of research on economies of size in the physician's office, group medical practice (both fee-for-service and prepaid) has been growing rapidly [26; 43]. Although Bailey and Yankeur et al. [6; 107] did not find increased efficiency (typically measured in terms of physician productivity) in group practice relative to solo practice, several others did find a modest increase [76; 27; 53; 17]. However, these apparent economies of size may exist only in small

groups but not in large groups [27; 53]. The facts in Table 6 are consistent with this conclusion.

Influence of the Nonprofit Motive: Maximizing monetary profits is a basic objective of the privately owned businesses which characterize the American economic system. It is this search for profit (and fear of loss) which leads businesses to try to produce their products as efficiently as possible. A significant portion of the health care industry, namely hospital care, is not oriented around the profit motive. In particular, only 12 percent of all the nation's hospitals are proprietary (for-profit) hospitals. About one-half are private nonprofit institutions, and 38 percent are publicly (or government) owned [21, p. 86]. The fact that only 12 percent of all hospitals are proprietary does not mean that (1) the other 88 percent do not earn a "profit,"* or (2) all hospitals should become profit-oriented.

Proprietary hospitals are less likely to provide care for those who cannot pay, and this is contrary to the basic belief that health care should be available to all. At the same time, the absence of a profit motive diminishes the incentive to be efficient. Brown summarizes the results of this dilemma as follows:

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*In profit-making organizations the excess of income over expenses is called "profit" and is returned to the owners. In nonprofit organizations the excess of income over expenses is called "net income," and since there are no owners this money is available to the organization to use as it sees fit. One of the concerns is that this money is used to expand existing services or to add new services without adequate need existing for these services. In 1973, the net income of private nonprofit hospitals was $1.3 billion [61, p. 1].

Table 6. Average Number of Total Patient Visits Per Hour by Type of Practice and Specialty, 1975

Type of Practice	Total Office Based Physicians	Specialty				
		General Practice	Internal Medicine	Surgeons	Pediatricians	Obstetricians/ Gynecologist
Solo	2.66	3.32	2.42	2.14	2.86	2.16
2-physician	2.95	4.14	2.25	2.43	3.22	2.87
3-physician	2.90	3.68	2.47	2.68	3.04	2.84
4-physician	2.80	3.58	2.35	2.53	2.89	2.67
5 to 7 physician	3.00	3.69	2.69	2.82	3.01	2.76
8 to 25 physician	2.89	3.58	2.76	2.52	2.79	2.94
26 physicians and over	2.23	2.38	2.03	2.30	2.50	2.19
All Types	2.75	3.48	2.40	2.32	2.92	2.51

Source: [9, p. 28]

> [Removing the hospital from a concern with profits has permitted it] to look at social and community needs rather than to investor needs. However, in freeing the hospital from the discipline of the usual economic profit constraint it left each hospital to its own definitions of goals and programs. To a great extent hospitals have done what hospitals and doctors wanted to do. They have looked to their own institutional aspirations. Being a hybrid between a private and public enterprise they have escaped the controls of both the marketplace and the government [10, p. 14].

One of the results of this nonprofit system is the increased likelihood that hospitals will tend to compete with each other on the basis of prestige, size, or technological sophistication, rather than on the basis of efficiency. In support of this proposition, Rapoport's research found that in "competitive environments" where there were large numbers of hospitals relative to the population, there was a greater tendency to adopt new technologies early and to acquire more expensive equipment [75].

The apparent tendency for hospitals to be more concerned with prestige, size, and other such factors rather than efficiency can be extremely expensive if it does, in fact, result in an overexpansion of services. Unfortunately, this frequently appears to be the case. For example recent studies indicate that a hospital occupancy rate of 85 percent is relatively efficient and still leaves sufficient standby beds in case of emergency or unusually heavy utilization at any given time [66, pp. 11-12]. Nationally, the occupancy rate hovers around 75 percent, and it has been estimated that the nation has between 60,000 and 100,000 excess hospital beds [66, pp. 7, 12]. Since the cost of maintaining an idle bed is at least 50 percent as much as an occupied bed the thousands of excess beds is extremely expensive and inefficient [66, p. 15].

Other evidence suggesting tremendous economic inefficiency includes the following:

1. The number of CT scanners installed or ordered in southern California alone may be more than is needed to serve the entire western part of the United States [21, p. 9].
2. In Philadelphia, twenty out of thirty-two megavoltage radiation therapy installations failed to meet minimum use criteria [21, p. 9].
3. Of the nearly 800 hospitals equipped to do open-heart surgery in 1972, one-third had never performed such an operation and another one-third did fewer than twelve per year [8, p. 18].

The concern with inefficient utilization goes far beyond economics. In particular, underutilization of highly complex services may result in lower quality care if the staff does not treat enough patients to get the necessary experience for providing first-class care. For example, the Inter-Society Commission for Heart Disease Resources recommends a minimum of 200 open-heart procedures per year to maintain professional competence [82, p. 106]. But, in 1971, the number of procedures performed at hospitals doing open-heart surgery averaged only 65 per hospital per year [78, p. 6].

Reimbursement Policies: Most health insurance plans have two reimbursement features which may impinge significantly on economic efficiency. One feature is the tendency to reimburse hospitals and nursing homes on the basis of " reasonable cost," and to reimburse physicians on ths basis of a "usual, customary, and prevailing fee." The second feature is the tendency to reimburse for services only when they are provided on an inpatient (or hospitalized) basis.

Most insurance plans reimburse hospitals and nursing homes on a cost-reimbursement basis [101, pp. 200-207]. Since hospitals receive 92 percent of their patient revenue from health insurance plans (including Medicare and Medicaid) the significance of the cost-reimbursement approach becomes magnified. The essence of the cost-reimbursement basis is that, within limits, all the costs incurred in treating an insured patient will be reimbursed. Under such a payment mechanism there would appear to be little incentive for the hospital or nursing home to be efficient since "the more spent, the more received." However, few studies have tried to analyze the effect of cost-reimbursement on hospital costs. Surprisingly, the research that has been done has not found a strong relationship between hospital costs and the extent to which their revenues are received on a cost-reimbursement basis [72; 24].

Reimbursing physicians on the basis of a "usual, customary, and prevailing fee" was initiated as part of the Medicare program. The intent of this reimbursement approach was to protect the insurer from being charged more than the physician typically charged the privately paying patient. While this does protect the insurer from being charged more than the privately paying patient is charged, this system of reimbursement does not offer a clear incentive for the physician to provide services in the most economical manner. Moreover, given the nature of the medical marketplace, there is no guarantee that the "usual, customary, and prevailing fee" is related to the physician's cost of providing services, and may be periodically raised even when the physician's costs have not risen significantly. Klarman suggests that the rapid escalation in physician fees since the introduction

of Medicare is, in fact, due largely to the way in which Medicare reimburses physicians; and the increased demand for services generated by the Medicare program is a less significant contributor to the escalation of fees [55, pp. 111-112; 56, pp. 228-229].

The second major reimbursement concern is the effect on efficiency of the tendency of insurance plans to reimburse for services only when provided on an inpatient (or hospitalized) basis. Since the same service provided in an outpatient clinic or physician's office is generally much less expensive to society (but not to the patient whose insurance covers only hospitalization) than if provided on an inpatient basis, the inappropriate utilization of hospitals represents considerable inefficiency. Much inappropriate utilization apparently exists, with some analysis estimating that over 25 percent of all patients admitted to U.S. hospitals could be treated just as effectively outside the hospitals [82, p. 140].

Demand for Health Services

In addition to cost of production, demand is another major determinant of the amount and price of health services purchased. Both price and amount of health services purchased will generally increase as demand increases. The demand for health services is determined primarily by the health condition of the population and their ability and willingness to purchase health services for any particular health condition.

Health Status of the Population

Other things equal, as the health condition of the population improves, the demand for health care services will decrease. Although a detailed analysis

of the factors affecting the health status of the population is beyond the scope of this report, the more significant factors include heredity, age, income, occupation, environment, and personal behavior. Among the important aspects of personal behavior are those related to physical activity, diet, stress, and usage of alcohol, drugs, and tobacco.

Ability and Willingness to Purchase Health Services

A set of health care needs will be associated with the health status of any particular population. However, populations with similar needs will often demand different amounts of health services. This difference in demand reflects differences in the ability and willingness to purchase health services. Unlike the purchase of most goods and services, the ability and willingness to purchase health services is determined jointly by the consumer and provider. Because of this joint involvement, the demand for health services, given the health status of the population, is both consumer-induced and provider-induced.

Consumer-Induced Demand: Two major influences on consumer-induced demand are the consumer's income* and the extent of health insurance coverage.**

*Estimating the independent effect of income is somewhat diffcult because as income increases, need for health services typically decreases. This means the independent effect of income on ability and willingness to purchase health services will be underestimated.

**Other socioeconomic factors such as age and race also influence the consumer's ability and willingness to purchase health services. For example, although the elderly and nonwhite have a relatively high need for health care, this need may not be effectively translated into demand. Reasons for this include the elderly's difficulty in "getting around" and discrimination encountered by nonwhites in the predominantly all-white health care system [51].

Both have increased significantly during the past quarter-century and research shows quite clearly that such increases lead to an increased demand for health services [85, pp. 28-38, 90-93; 33, p. 36; 104; 94, pp. 7-8]. The reason demand increases in response to rising income is straightforward, but the effect of health insurance is a bit more complex than it may appear. This complexity is well summarized by Feldstein and Phelps:

> Health insurance not only provides incentives to patients to seek more care, but it may provide incentives to seek more expensive sources of care. The additional expensiveness may arise from the patient seeking better qualified doctors, better equipped hospitals, or simply because they choose doctors and hospitals that provide more amenities (finely appointed offices, nicer neighborhoods and the like) [73, pp. 234-35].

And

> The effect of prepaying health care through insurance is to encourage hospitals to produce a more expensive product than consumers actually wish to purchase at the time of illness. The insured patient's demand for care reflects the net price, the hospitals' charge net of insurance benefits. He is therefore willing to purchase much more expensive care than he would if he were not insured. This induced demand for expensive care gives a "false signal" to hospitals about the type of care the public wants. Unfortunately the production of high-cost hospital care is a self-reinforcing process; the risk of very expensive hospital care stimulates patients to prepay hospital bills through relatively comprehensive insurance, while the growth of such insurance makes hospital care more expensive [31, p. 76].

This complexity is further aggravated by two factors related to the way in which health insurance is purchased. One factor is the federal income tax structure which subsidizes insurance coverage by (1) not counting employer payments for insurance premiums as part of the employee's income and (2) allowing the insurance premiums paid by the individual to be deducted from taxable income [33, p. 38; 22, pp. 15-16].

The second factor stems from the fact that approximately 80 percent of health insurance premiums are paid through employment-related group insurance plans. If the employee makes no contribution to the plan, he or she will not realize the cost of the coverage. Even when the employee makes a contribution it is usually in the form of a payroll deduction, and surveys indicate that employees do not think of their health insurance as foregone income or realize how much foregone take-home pay the premiums represent [52, p. 6]. Both of these factors obscure the true premium cost and the individual is likely to demand more coverage than if the premium costs were not obscured.

Provider-Induced Demand: The existence of provider-induced demand is apparent in a number of ways. It is the physician who decides what to prescribe, when and how often the patient should return for re-examination, whether or not the patient should be admitted to a hospital and where (depending, in part, on which hospital the physician has privileges), and when the hospitalized patient should be discharged. This is not to say the consumer has no choice in the decision-making process, because it is the consumer who makes the decision initially to enter the delivery system and always has the option of changing doctors or refusing to follow the doctor's orders. Davis summarizes the situation as follows:

> While the consumer can still participate in policing the market, that participation is much more limited in the field of health care than in almost any other area of private economic activity [23, p. 22].

The ability of the physician to heavily influence the decision of what, when, and where to purchase invariably leads to a fundamental question: will

the physician's influence reflect only the physician's concern for the patient or will it also reflect at least some concern for the physician's self-interest? Two aspects of the current delivery system increase the probability that the physician's self-interest will play at least some role. One aspect is the rapid growth in malpractice suits, as noted earlier. The increased probability of being sued has likely led to the practice of "defensive medicine" in which certain laboratory tests and other procedures are performed which are not medically necessary. However, having performed these tests and procedures, the physician is better protected in the courtroom against charges of negligence. In short, the increase in malpractice suits has likely increased physician-induced demand for certain health services.

The fee-for-service method of paying the physician is the second aspect of the delivery system which increases the probability that the physician's self-interest will come into play. Under this method of payment, more income is generated as more patients are seen and as more procedures are performed. While such a method of payment may serve as an incentive to keep productivity high, it may also serve as an incentive to overprescribe. Although the existence of significant "unnecessary utilization" is fairly well documented [34; 82, p. 140; 91] it is not clear exactly how much of this is due to the fee-for-service system of reimbursement and how much is due to the bias of health insurance toward hospitalized care and the fact that direct out-of-pocket cost to most consumers for using health services (especially hospital care) is near zero. However, there is evidence that the fee-for-service system of reimbursement is responsible for at least some of the unnecessary utilization. The extreme example of its contribution is the practice of "ping-ponging" in the infamous Medicaid Mills [11]. Another example is

cited by Harris:

> In one hospital audit it was found when an all-specialist medical staff was paid salaries, the gynecologists did about 26 hysterectomies per audit period, but later on a fee-for-service basis, they did 130 per audit period [44, pp. 314-315].

In short, the reliance of the consumer on the provider in making decisions about the purchase of health services, when coupled with a fee-for-service payment mechanism, may lead to a situation in which "supply creates its own demand." Moreover, some of this supplier-induced demand may result in unnecessary utilization. The possibility of "supply creating its own demand" was first formulated by Dr. Milton Roemer in 1959 and has subsequently been referred to as Roemer's Law [36, p. 96]. Those who subscribe to Roemer's Law use the following studies as supporting evidence:

1. Research which indicates that the number of surgical procedures per capita are directly related to the number of surgeons per capita [11; 29; 45].

2. Research by Feldstein and others which found that (1) an increased demand for physicians followed an increased supply, and (2) a direct relationship exists between increases in the number of hospital admissions and increases in the supply of physicians, particularly specialists [71; 37; 32].

3. Statistical analysis which indicates that a 1 percent increase in the number of hospital beds raises per capita utilization by about .4 or .5 percent [62; 15].

4. The number of hours per week and the percentage of total work time the physician spends in the hospital increases in relationship to the number of hospital beds per 100,000 population [18].

5. If supply does not create its own demand, then the normal working of the Law of Supply and Demand indicate that an increase in supply will lead to lower prices, other things equal. Research indicates that this is not the case. For example, physician fees tend to rise, not fall, as the physician-population ratio increases [90, p. 12; 83].

PROPOSED SOLUTIONS FOR CURBING HEALTH CARE EXPENDITURES

The previous chapter of this report focused on the reasons behind the rapid rise in health care expenditures. In this chapter, various ideas which have been proposed for dealing with this rise in expenditures will be discussed briefly. Many of these ideas or proposed solutions are extremely complex, remain untested and unresearched, and if implemented may have both desirable and undesirable unintended consequences. Hence, in this brief discussion of "solutions" the reader should guard against the tendency to find simple answers to such a complex problem.

Reducing Cost of Production

Monitoring the Introduction of New Medical Technology

Most of the concern regarding the effect of medical technology on health care expenditures centers on the unnecessary duplication among hospitals of existing technology. This excessive diffusion of technology stems primarily from the kinds of incentives associated with the nonprofit nature of most hospitals and from health insurers' policy of cost-reimbursement. Ways of countering these incentives will be discussed in ~~this~~ subsequent section 3. In addition to the problem of excessive diffusion of existing technology, another issue is the process by which new medical technology is developed and made available. To the extent some of this technology is counterproductive or at least not cost effective, Gaus argues that:

> vigorous economic analysis and tests of efficacy and efficiency must increasingly enter the biomedical research domain [in terms of] evaluating new techniques not yet diffused, and allocating medical research dollars. This would produce valuable information for very difficult societal

> decisions in the future concerning who shall live and who shall die. However, information alone will not solve the resource allocation problems of the future. A new mechanism must be created so that the public is heavily involved in these decisions and is educated to accept the fact that while science may be capable of saving lives, the economy may not be able to afford it [39, p. 132].

Although Gaus does not suggest a specific mechanism for evaluating medical technology which is not yet diffused, one possibility would be a regulatory authority akin to the Federal Drug Administration (FDA). Gaus hints at such a possibility when he notes that:

> Unlike pharmaceuticals, which are not permitted on the market until after they have been extensively tested [by the FDA], new medical procedures remain on the market until they are found unsound or possibly irrelevant [39, p. 13].

Reducing Prices Paid by Providers for Their Inputs

In the absence of economy-wide policies to curb inflation there is little that can be done to reduce the prices health care providers must pay for their inputs. The reason for this is that for the most part health care providers must compete with other industries for their labor and nonlabor inputs and pay "the going price." One notable exception to this general rule is malpractice premiums. Several ways have been suggested for dealing with rising malpractice premiums [16; 67; 60]. The following six proposals are probably the most frequently mentioned.

1. Establish common insurance pools among all insurance carriers in order to spread the risk over a broader base.
2. Establish an upper limit on the amount of malpractice awards.
3. Eliminate "contingency fees" in which attorneys are paid a certain percentage of the malpractice award.

4. Stricter licensing of physicians, and recertification of physicians to increase the quality of care.
5. Limit the period within which malpractice suits may be filed.
6. Remove professional liability claims from the traditional courtroom-jury setting.

Increased Efficiency in the Use of Inputs

Removing Restrictions on the Use of New Health Practitioners (NHPs): The full potential of NHPs as a curb on rising health care expenditures can be realized only when the barriers that restrict their use are removed. Examples of these barriers include medical practice acts which simply prohibit the involvement of NHPs in the delivery of medical care; malpractice provisions which make it difficult for physicians to effectively employ NHPs; and lack of uniform accreditation, licensure, and certification procedures for NHPs. Another important barrier to the effective use of NHPs is the reluctance by many insurance companies to reimburse for services delivered by NHPs. In this regard a major recent breakthrough was the passage of the Rural Health Clinics Services Act (PL 95-210). This bill permits Medicare reimbursement for services performed by a nurse practitioner or physician's assistant in rural areas even when these services are rendered in the absence of a physician's direct supervision.

Achieving Economies of Size: If economies of size exist in the provision of health services, ways of encouraging larger hospitals and group practice should be considered. However, in trying to achieve economies of size, consideration must also be given to the increased indirect cost to the patient

if fewer but larger hospitals and doctor's offices were to be developed. These indirect costs include increased transportation costs, lost income from increased time away from one's job, and increased mortality/morbidity from being further from health services. These indirect costs become particularly important in sparsely populated rural areas.

Regionalization of services and the related notion of shared services are the most common proposals advocated for achieving economies of size in the provision of health services--particularly hospital care. Regionalization, in theory, would lead to the closure of small inefficient hospitals or at least limit the scope of services small hospitals could offer. One way of achieving this goal is through licensure in which inefficient hospitals would be denied a license to operate. This concept could also be extended to specific services. For example, a few selected hospitals in a region could be given a license for a specialized service such as a neonatal intensive care unit, and all other hospitals in the region would be forced to transfer their high-risk newborns to the hospitals licensed to provide this unit.

Licensure is only one of the sanctions that could be used to close or prevent future development of inefficient facilities and services. Other sanctions, such as the denial of reimbursement for services not approved by state or federal planning agencies, are discussed in the next section.

With the threat of such sanctions, there appears to be some movement on the part of hospitals to voluntarily share certain services [47]. For example, a 1971 survey of community hospitals found that 66.6 percent of the hospitals responding had some kind of sharing arrangement with another hospital. The most frequent kinds of sharing involved blood banks, purchasing of

medical/surgical supplies, data processing, disaster plans, and professional laboratory staff [5].

Countering the Undesirable Effects of the Nonprofit Motive: At least two approaches have been suggested for dealing with the inefficiency (in the form of overexpansion and duplication of health services) that allegedly results from the health care industry's heavy reliance on the nonprofit motive. The most common approach is to regulate the amount of investment or capital expenditures that flows into the industry, with particularly close scrutiny given to proposals for expanding such health care facilities as hospitals and nursing homes. Attempts to regulate capital expenditures are typically implemented by either (1) enacting certificate-of-need legislation on a statewide basis or (2) developing regional health planning agencies which operate under a federal legislative mandate.

Under certificate-of-need programs, capital expenditures exceeding a certain minimum (usually $100,000) will not be approved unless the "need" for the expenditures is clearly justified. The agency empowered to grant approval is usually the state's Department of Health. Various sanctions are used to insure that a facility does not embark on its proposed expenditure plan without the necessary approval. The most common sanction is withholding or revoking a license from a facility whose expenditure plan is disapproved but who does not abide by that decision [101, pp. 99-104]. Research has shown that state certificate-of-need programs, as they were being operated between 1968 and 1972, did not reduce total hospital investment in comparison to states that did not have such programs. However, the certificate-of-need

programs did have a significant impact on the composition of investment. Investment in new beds was restricted, but this reduced investment was offset by an increase in investment in other services and equipment [79].

Regional health planning agencies operating under federal legislative mandate have the same basic purpose as the older state-implemented certificate-of-need programs, but are organized differently and use a different set of sanctions to limit capital expenditures. The first regional planning agencies were called comprehensive health planning agencies and were initiated under the 1966 Comprehensive Health Planning Legislation. In 1974, this legislation was superseded by the National Health Planning and Resources Development Act (PL 93-641). This legislation mandates a nationwide network of Health Systems Agencies (HSAs). In most cases an HSA serves a population of 500,000 to 3,000,000. The governing body of an HSA (which must have a majority of local health care "consumers") reviews proposed projects which involve capital expenditures of $100,000 or more, the addition of beds, or a substantial change in service [101, pp. 104-108]. The decision of the HSA is first forwarded to a State Health Coordinating Council and ultimately to the Secretary of Health, Education, and Welfare. Although the decision of the HSA can be overturned at either of these two levels, this does not normally occur. However, HSAs are expected to adhere to federal planning standards. For example, HEW has established as a standard a maximum of 4.0 hospital beds per 1,000 persons which is to be exceeded only under extraordinaty circumstances [68, p, 13045]. The main sanction of the HSA is withholding federal reimbursement (primarily Medicare and Medicaid payments)

for all costs associated with the disapproved capital expenditure.

It should be noted that not all review processes for capital expenditures are the domain of state and federal governments. Some insurers--primarily Blue Cross--will not reimburse health care providers for costs associated with capital expenditures which the insurer has not approved [101, p. 101].

Although review processes for capital expenditures are typically designed to deal with plans for new investment, it would also be possible for such plans to be retroactive. This approach would, in essence, amount to decertification or disinvestment in those cases where existing services or facilities were not needed. To date, such an approach has not been tried, but its impact on health care expenditures could be significant. For example, suppose the number of hospital beds were reduced from the present figure of 4.4 per 1,000 population to 4.0. Since excess capacity exists, occupancy rates would increase. In this scenario, research indicates that hospital expenditures would be reduced by 6 percent [90, pp. 52-54].

The second approach for dealing with the inefficiency that allegedly results from the nonprofit motive is to place more reliance on the profit motive by encouraging, for example, the development of more proprietary hospitals. As noted earlier, only 12 percent of the nation's hospitals are proprietary. Since these hospitals tend to be smaller, less likely to be involved in research and teaching, and different in other ways from nonprofit hospitals, it is not easy to make efficiency-related comparisons between the two groups. Although no definitive research has been done on the relative efficiency of the two different kinds of hospitals, scattered evidence does

not indicate that proprietary hospitals are significantly more efficient [101, pp. 295-305; 70, p. 242]. Even if proprietary hospitals were found to be more efficient their development would have to be modified somewhat so that unprofitable (but needed) services would be provided, and so persons who had limited ability to pay would not be denied services.

Initiating Alternative Reimbursement Policies: Innumerable specific proposals have been advanced that serve as alternatives to the common practice of reimbursing providers on the basis of their cost or on the basis of an "usual, customary, and prevailing fee." Although the various proposals differ significantly in some rather important ways they also have a common denominator. This common denominator is regulating the rates or fees which providers may charge for their services [101, pp. 137-140]. This approach typically leads to a fixed statewide or regional fee schedule for physicians and avoids the flexibility and latitude associated with the "usual, customary, and prevailing fee."

Prospective rate setting (PRS) is the term frequently used when applying this approach to hospitals and nursing homes. Dowling describes PRS as follows:

> PRS is a cost-containment strategy wherein an external authority establishes the prices that providers are allowed to charge and/or that third parties are required to pay in advance of the period in which services are actually provided. The key difference between PRS and conventional forms of reimbursement is that providers are not paid the costs they actually incur each year, nor are they free to unilaterally adjust their charges to cover these costs; rather, providers are paid at rates that are set in advance of and considered fixed for the prospective year . . . it is assumed that the constraints on revenue

> imposed by fixing provider charges and/or third-party payment rates will cause providers to contain costs in order to avoid losses (or earn surpluses) [25, pp. 263-264].

Little empirical evidence exists on the potential of PRS for reducing health care cost. Some insight can be gathered by reflecting on what occurred during the Economic Stabilization Program (1971-1974) when physician fees and hospital rates were not allowed to increase by more than predetermined percentage. During this period health care costs did, in fact, moderate considerably [90, pp XIV; 88]. Additional insight on the effect of PRS will be forthcoming as more research is undertaken on a number of experimental PRS programs. To date, the research on these experiments has not been conclusive [25; 90, pp. 39-42].

The second reimbursement concern is the tendency of insurance plans to reimburse for services only when provided on an inpatient basis. Two basic approaches exist for dealing with the inappropriate utilization of the more expensive inpatient services which may result from this reimbursement policy. The first approach is to change the incentive system so the patient (or the doctor serving on behalf of the patient) will not have an incentive to seek care on an inpatient basis instead of on an outpatient basis. This can be done by extending insurance benefits to services provided on an outpatient basis.* The effect of this can be gauged by comparing where persons with

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*Although a particular medical procedure or treatment performed on an outpatient basis is generally less expensive than one done on an inpatient basis, total health care expenditures could still rise if insurance were extended to cover outpatient services. The reason for this is that such an extension could result in an increased number of persons who initially seek care.

different kinds of health insurance coverage receive their care. One such study analyzed the surgical workloads of surgeons working in a Health Maintenance Organization, and compared their workloads to those of non-HMO surgeons. The HMO plan encouraged outpatient surgery, and it is safe to presume that the persons involved with the non-HMO surgeons would typically have insurance plans which covered inpatient surgery only. Results of the study showed that the non-HMO surgeons "performed very few (outpatient) procedures and, for the most part, admitted as inpatients those patients who were treated on an (outpatient) basis in the (HMO)" [48, p. 4].

A second approach for preventing inappropriate utilization of more expensive inpatient services is to impose negative incentives (no reimbursement, fines, etc.) for engaging in such practices. The most visible attempt of using negative incentives to minimize inappropriate utilization patterns was the establishment in 1972 of Professional Standards Review Organizations (PSROs). PSROs are federally mandated organizations which are operated by local physicians. Their purpose is to assure that the care provided to persons covered by federal programs (such as Medicare and Medicaid) is necessary and is provided in the most economical way possible. PSROs operate by having the hospital-related work of local physicians reviewed by their colleagues to see if it deviates from local standards [101, pp. 131-136]. An extensive evaluation of the PSRO program found that it was <u>not</u> effective. In particular, the study concluded that:

> No statistically significant aggregate PSRO effect was found on hospital utilization or admission rates.
> [and that]

> PSROs, acting primarily on appropriateness of utilization, have little potential to countervail or reduce the inflation in prices and technology that comprise the major causes of the rapid rise of hospital care expenditures. Thus, PSROs should not be considered a stand-alone, cost containment strategy, but rather as one important part of a comprehensive strategy of rationalizing the delivery of health care services [74, p. 3].

Although PSROs appear to have little success in reducing inappropriate utilization, other PSRO-like approaches have been successful. For example, the Colorado and Sacramento Foundation for Medical Care experienced a $3-$4 savings in expenditures for every $1 spent on the review program [90, p. 37]. Similarly, there is some research evidence that "utilization review" is effective <u>if</u> it is undertaken in areas characterized by a relatively scarce supply of beds in relation to the demand for those beds. This evidence supports the hypothesis that only in such areas is there motivation to control the use of hospital beds [88, pp. 366-367].

<u>The Alternative of Government Provision</u>

Most suggestions for reducing the cost of production emphasize changes in incentives or the use of increased government regulations in such ways as limiting capital expenditures via certificate-of-need legislation. There are those who reject these measures and argue, instead, for direct government provision of health services.* At least two objections are typically leveled

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*It is extremely important not to confuse governmental provision of health services or "socialized medicine" with national health insurance. National health insurance, in pure form, is the use of public funds to assist individuals in purchasing health services and has nothing to do with who provides those services.

at the more conservative approaches of changing incentives and increasing government regulation. One reason is the belief that a reduction in the cost of production will not be passed along to the consumer because of the lack of competition and the imperfections that exist in the medical marketplace. The second reason is that government regulation and those who are to impose these regulations will respond to the needs and desires of the vested interests within the health care industry rather than to the general public [58; 69; 80; 102].

Although government provision of health care is the rule rather than the exception in many countries, such as Great Britain and Sweden, at least two arguments are often raised against this approach. One argument is a fundamental philosophical objection to "government involvement." The counterarguments to this position are that (1) government involvement is not intrinsically evil--especially if the market place is not functioning properly--and (2) government is already involved in a way which violates the pure concept of "free enterprise." Examples of current government involvement include: licensing requirements for physicians and other personnel; restrictions on the development and marketing of drugs and medical devices; the licensure and setting of safety standards for health care facilities; laws which prohibit advertising by health care providers; certificate-of-need legislation; and the provision of services through the military health care system, Veteran's Administration, National Health Service Corps, and Indian Health Service.

The second argument against government provision of services is that it will result in inefficiency and lower quality care. One counterargument

to this allegation is that if inefficiency were to result, it would not surpass the existing level of inefficiency in the "private" health care system. In reference to the quality issue, horror stories from military and Veteran's Administration hospitals are commonplace; but on the other hand our Presidents and Congressmen presumably receive the ultimate in care at places like Bethesda Naval Hospital and Walter Reed Hospital. Similarly, it is frequently argued that the incentive to provide quality care will generally decline if physicians are paid on a salaried basis as they typically are in government-operated health systems; but at the same time the nation's highest quality care is provided at places like the Mayo Clinic where physicians are paid on a salaried basis. Unfortunately, little serious research has been undertaken to give a better insight into the advantages and disadvantages of government provision of health services. One method of gaining these insights would be through a series of international comparisons, and some research efforts in this direction have recently been initiated [11; 57; 98; 105].

Reducing the Demand for Health Care

Improving Health Status

Theoretically, the most promising way of reducing health care expenditures is to improve health status and, therefore, reduce the demand for health care. Although a number of factors affecting health status, such as age and heredity, cannot be altered, others such as income, environment, and personal behavior can be altered. Moreover, more emphasis could be put on preventive rather than curative medical services. In assessing the

factors affecting health status, Dr. Theodore Cooper recently asserted that:

> It is one of the great and sobering truths of our profession that modern health care probably has less impact on the health of the population than economic status, education, housing and sanitation [49, p. 4].

A rather dramatic example which reinforces Dr. Cooper's assertion is the combined effect on health status of the 55 miles-per-hour speed limit and higher gasoline prices. These factors have apparently led to a 20 percent reduction in auto accidents, and since taking effect in 1973 may have been the single greatest contribution to "better health" [59, p. 457].

The innumerable possibilities for improving health status go far beyond the scope of this report. A number of the possibilities are covered in Kristein et al., and Somers [59; 84]. Despite the potential impact on health status of such factors as improved environment, changed personal behavior, and greater use of preventive medical services, these avenues should not be viewed as a panacea for reducing health care expenditures. Four cautionary notes must be kept in mind. First, efforts to change personal behavior in areas such as smoking, diet, and exercise have had only mixed success [52, p. 18]. Second, many medically oriented preventive services such as physical examination and mass screening may have no beneficial impact [73, pp. 237-242]. Third, many medical conditions are not currently preventable with our existing knowledge. Fourth, there is an ultimate limit to the amount of death and illness which can be minimized; i.e., all persons eventually die.

Reducing the Ability and Willingness to Purchase Health Care

Reducing Unnecessary Consumer-Induced Demand: Efforts to reduce unnecessary consumer-induced demand typically focus on changing the health insurance and

federal income tax systems. In terms of the tax system, it has been suggested that the employer's health insurance payments could be treated as income to the employee and that the employee's premiums not be considered deductible expenses [90, p. 57]. The presumed effect of these changes would be to reduce the breadth of insurance covereage, thereby reducing the demand for health care. Even greater attention has been given to "reforming" health insurance plans by increasing the consumer's out-of-pocket or net cost of health services at time of purchase. The most common way of doing this is through co-payment in the form of deductibles and co-insurance [30; 36, p. 60; 42; 73, pp. 236-237; 90, p. 57]. With a deductible provision, the patient is required to pay the first $X but beyond that point the insurance plan will begin payment. Co-insurance requires the patient to pay a certain percentage of his or her health care costs (at least until some maximum limit is reached). Phelps points out that the effect of co-insurance and deductibles can be quite different:

> A fixed deductible (say $100) might alter slightly the demand for admissions, but it will have no noticeable effect on decisions regarding length of stay or general resource use within the hospital, because in virtually any hospitalization, the deductible would be exceeded by the first day's expenses. A straight coinsurance provision, however, would have the same effect on both admissions and length of stay decisions [73, p. 232].

As might be expected, a number of objections can be raised against the co-payment mechanism. The objections range from the practical matter of administrative efficiency to the major equity concern that co-payment may create a substantial financial barrier for the poor [73, pp. 226-227].

A companion proposal to increased reliance on co-payment would be repealing legislation that prohibits advertising by health care providers and facilities. In essence, co-payment schemes are designed to make the consumer more cost-conscious, and the logical conclusion to this approach is that the consumer should be informed of the alternative prices he or she faces. The secondary effect of advertising would be to introduce an element of competition into the medical marketplace. Recent research on drugs and eyeglasses indicates that where advertising is permitted the retail prices of these items are significantly lower [12; 7].

Reducing Unnecessary Provider-Induced Demand: One aspect of unnecessary provider-induced demand stems from the need to practice "defensive medicine" in order to reduce the probability and size of malpractice suits. Five ways of achieving such reductions were mentioned earlier in this chapter.

Another undesirable aspect of provider-induced demand is the concern that a fee-for-service reimbursement mechanism will increase the amount of unnecessary medical services and procedures. Concern with this possibility is particularly great in those areas where a relatively large number of medical resources are present. Several potential solutions exist for dealing with this situation.

First, to the extent that unnecessary provider-induced demand is greatest in areas where a relatively large number of medical resources are present, one potential solution is to simply limit the supply of medical resources available. Note that this is the exact reverse of the kind of policy which would be considered if the medical marketplace were similar

to the marketplace for other goods and services. In a "normal" marketplace the appropriate policy would be to increase supply so price (and expenditures*) would decrease. Various proposals for limiting the supply of health facilities were discussed earlier. To date, only occasional consideration has been given to limiting the supply of physicians and other medical personnel [90, pp. 57-58] despite some recent warnings about an excessive growth in physician numbers [14].

Another potential solution is to eliminate the fee-for-service reimbursement mechanism. Physicians in HMOs work typically on a salaried basis and it is argued that they:

> have no incentive to increase their incomes by hospitalizing patients or providing unnecessary tests; unnecessary procedures have, in fact, the effect of reducing net income to the HMO and, therefore, to the physician [90, p. 59].

Research on HMOs indicates quite clearly that hospitalization rates for HMO enrollees are significantly lower than for persons receiving care on a fee-for-services basis [41; 85, pp. 172-178; 99, pp. 223-224, 232, 234]. A recent estimate suggests that overall cost savings in HMOs average about 20 percent, even after such variables as differing populations and out-of-plan expenditures are taken into account [86, p. 70]. What is not clear is how much of the lower hospitalization rates and cost savings is due to the fact HMO physicians are paid on a salaried basis rather than a fee-for-service basis. Other contributing factors may be that HMOs usually operate with a relatively small bed supply, and that HMO plans relative to most traditional health insurance plans have a much broader coverage of outpatient services [101, p. 225; 36, p. 140]. At any rate, the reduced hospitalization rates and cost savings do not appear to

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*This assumes demand is "inelastic" with respect to price (see p. 20).

result in low quality of care or patient dissatisfaction [40; 101, pp. 229-233].

If the fee-for-service reimbursement mechanism is to remain in place, at least two additional approaches have been suggested for reducing unnecessary provider-induced demand. One approach is through utilization review mechanisms such as PSROs, which were discussed earlier. Another approach is to increase the "bargaining power" of the consumer in the provider-patient relationship. Examples of the latter approach include implementation of the American Hospital Association's "Patient's Bill of Rights" and a program of "second surgical opinions." Relevant portions of the "Patient's Bill of Rights" are:

> "The patient has the right to obtain from his physician complete current information concerning his diagnosis, treatment and prognosis in terms the patient can be reasonably expected to understand."
>
> "Where medically significant alternatives for care or treatment exist, or when the patient requests information concerning medical alternatives, the patient has the right to such information. The patient also has the right to know the name of the persons responsible for the procedures and/or treatment" [1, pp. 14-15].

Finally, in recent years there has been growing emphasis on programs that provide "second surgical opinion." A general definition of such programs has been developed by Haug:

> When an elective operation is recommended to a patient, the patient is permitted or required, depending on whether the program is voluntary or mandatory, to have the need for the operation confirmed by a specialist in the appropriate surgical specialty [46, p. 65].

New York became the first state to require insurance companies to offer to the policyholder at no cost a second surgical opinion benefit. Since this kind of a program is relatively new its effectiveness has not been studied thoroughly. However, initial studies indicate that 25 to 35 percent of the

operations recommended were not confirmed by a second opinion. The kind of surgical procedures least likely to be confirmed were hysterectomies, prostatectomies, and operations on the knees [46].

SUMMARY AND CONCLUSIONS

At least two concerns underlie the nation's preoccupation with health care expenditures. The first concern is that society may not be getting a "reasonable return" from its increased expenditures on health care. The second concern is that the quantity of services associated with a given amount of expenditures could possibly be made available less expensively. The concern stems from the fact that the "market" for health care deviates significantly from the kinds of markets which characterize the American "free enterprise system."

In 1977, the nation spent $163 billion on health care. Moreover, the recent growth in expenditures--both on a per capita basis and as a percentage of Gross National Product--has been phenomenal. The largest single share of the health care dollar goes to hospital care. In terms of the financing of health care services, there has been a considerable increase since 1965 in the percentage of total expenditures financed from government sources--particularly the federal government. The increased role of government financing, when combined with the increased role of private insurance payments between 1950 and 1977, has resulted in a significant decrease in out-of-pocket payments. In 1950, 68 percent of total expenditures were attributed to out-of-pocket expenditures. By 1977, this percentage had declined to 30 percent. However, out-of-pocket payments are the principle source of financing for dentists' services and drugs, but represent only 6 percent of the total payments made for

hospital care.

Total expenditures for health care or any any other good or service are determined by the following formula:

Total Expenditures = Price Per Unit x Number of Units Purchased.

It is extremely important to realize that price and expenditures are two very different concepts, and policies aimed at controlling one will not necessarily control the other.

Both price per unit and the number of units purchased are determined by cost of production and level of demand. In terms of cost of production a major factor in recent years has been the rapid growth and introduction of cost-enhancing technology. Simultaneously, demand has increased due to the rapid growth in health insurance, including Medicare and Medicaid. A host of other important factors also influence cost-of-production and demand. These factors are shown schematically in Figure 4.

One of the problems with the various proposals for curbing health care expenditures is that the policies are not coordinated in a systematic fashion. For example, limiting the expansion of hospitals may decrease utilization of hospital services but will not necessarily reduce total expenditures if hospitals simply raise their charges for the services they provide. This suggests that policies for limiting the expansion of hospitals should be implemented in concert with policies that can regulate hospital rates. Similarly, review mechanisms for reducing inappropriate utilization of services appear to be most effective when combined with policies that lead to a relatively scarce supply of hospital beds.

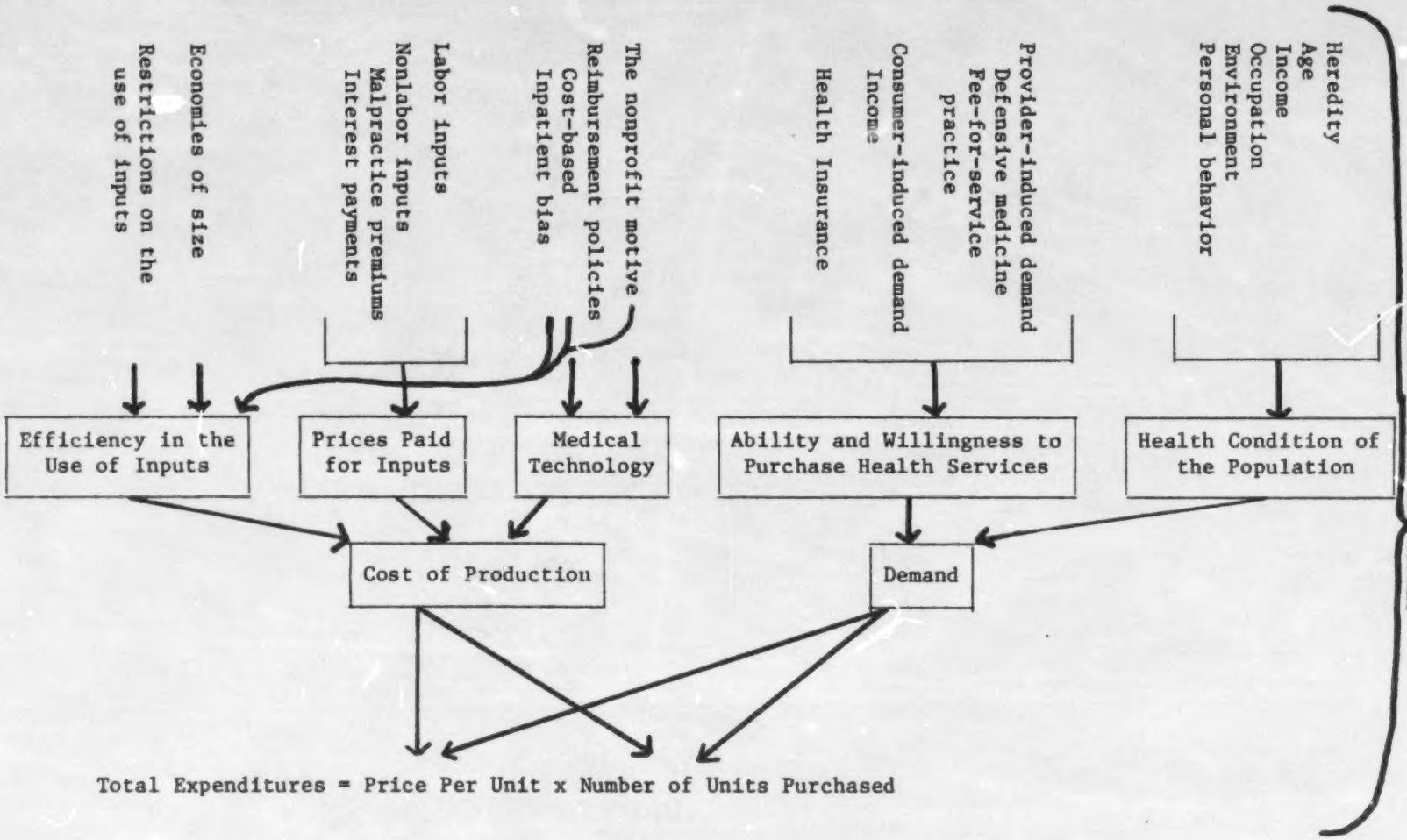

Figure 4. Summary of Factors Influencing Health Care Expenditures and Potential Solutions for Moderating Expenditures

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